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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/806,643
Filing Date: March 23, 2004
Appellant(s): SCHROEDER ET AL.

Donald J. Firca, Jr.
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 11/07/2007 appealing from the Office action mailed 05/11/2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct. The amendments after final are entered and sufficient to overcome the 112 claim rejections made in the Final Office Action mailed on 05/11/2007.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,955,845	POOLE et al	10-2005
6,302,466	ZWICK	10-2001
4,923,904	HASEGAWA et al	05-1990

WO 90/14944, Ragland et al, "Heat Barrier Laminate", December 13, 1990.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 3, 7, 10-12, 33, 35, 39, 42, 45 and 47-49 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Zwick (US 6,302,466).

Zwick discloses a heat shielding vehicle trim comprising a car body 2 and a heat shield 9 clamped to the car body as shown in figure 1. The heat shield includes an insulating material 5 interposed between two aluminum layers 1 and 6 (figure 1, column 4, lines 10-20). The insulating material is made of a foam material (column 3, lines 45-50). The metal layer and the foam layer have the thickness within the claimed ranges (column 4, lines 10-12). The insulating assembly consists of *resilient* porous foams (column 3, lines 48-50). The resilient insulating assembly acts like a spring between the car body part and the backing sheet (column 3, line 42-43). The spring action of the insulating assembly assists attachment of the heat shield in the area of the car body tunnel (column 5, lines 45-50). The "resilient" and "spring action" taken individually or in combination would indicate that the foam layer is deformable to accommodate a particular shape and contour to which the heat shield is to be bent and to generally conform in use without substantially damaging the cellular structure of the foam as a result of such deformation. Zwick does not specifically disclose the foam having claimed thermal and acoustic insulation properties. However, it appears that Zwick discloses a resilient porous foam which act like a spring between the car body and the backing sheet. Both foam materials of

Zwick and the claimed invention are deformable, having the superior vibration-damping and heat resistance characteristics and serve the same purposes as a heat shield for an automobile body panel. Therefore, it is the examiner's position that the foam layer of Zwick would inherently have the heat shield and acoustic damping within the claimed ranges so as to be an effective heat shield for the car body. Accordingly, Zwick anticipates or strongly suggests the claimed subject matter.

Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zwick (US 6,302,466) as applied to claim 47 above, and further in view of Hasegawa et al (US 4,923,904).

Zwick does not specifically disclose the foam layer being made from an expandable foaming composition as recited in the claims. Hasegawa, however, discloses a polyurethane foam suitable as a heat insulating material made from a composition similar to the composition as set forth in the claims. Hasegawa discloses the foam easily being cut to form a shape when used and fitted to a complex shape (column 3, lines 50-55). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the polyurethane foam as described in the Hasegawa invention because the foam layer has excellent foaming performance and can be produced from less expensive raw materials and fitted to a complex shape.

Claims 2, 3, 5, 7, 10-12, 19, 20, 33, 35, 39-42, 44, and 47-49 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ragland et al (WO 90/14944).

Ragland teaches a heat shield laminate comprising a first metallic layer, a first insulating material, a second metallic layer and a second insulating material. The first and second

insulating materials can be either a polyurethane foam or a non-woven layer (claims 19 and 20). The heat shield laminate is mounted on the metal floor of the passenger compartment (page 7, lines 10-20), which reads on Applicants' automotive body panel. The metal layer has a thickness of from 0.001 to 0.0015 inches (page 10, lines 15-20). The first insulating layer has a thickness up to 0.1 in. and the second insulating layer having a thickness up to 1 in. (claim 5). The laminate has surprisingly effective acoustical properties (page 8, lines 5-10). The insulation layer is a polyester non-woven batt (page 10, lines 25-28). The heat shield laminate is mounted to an automotive body panel. . Ragland discloses the foam material including silicone foam which is known of a very deformable material (page 11, lines 20-22). Ragland further adds that the foam material has a desired *elasticity* (page 11, lines 25-27). Likewise, the foam material must be deformable so as to have the desired elasticity. The foam material of the present invention and Ragland are both deformable, having the vibration-damping and heat resistance characteristics, and serving the same purposes as a heat shield for an automobile body panel. The foam material is formed from polyurethane foam (page 11, lines 20-22). Therefore, it is the examiner's position that the foam layer of Ragland would inherently have the heat shield and acoustic damping within the claimed ranges so as to be an effective heat shield for the car body. Accordingly, Ragland anticipates or strongly suggests the claimed subject matter.

Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ragland et al (WO 90/14944) as applied to claim 47 above, and further in view of Hasegawa et al (US 4,923,904).

Ragland does not specifically disclose the foam layer being made from an expandable foaming composition as recited in the claims. Hasegawa, however, discloses a polyurethane

foam suitable as a heat insulating material, made from a composition similar to the composition as set forth in the claims. Hasegawa discloses the foam easily being cut to form a shape when used and fitted to a complex shape (column 3, lines 50-55). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the polyurethane foam as described in the Hasegawa invention because the foam layer has excellent foaming performance and can be produced from less expensive raw materials and fitted to a complex shape.

Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ragland et al (WO 90/14944) as applied to claim 47 above, and further in view of Poole et al (US 6,955,845).

Ragland does not specifically disclose a fiber mat embedded within the insulating layer. Poole, however, discloses an acoustical and thermal insulator comprising a blanket layer interposed between two facing layers and the porous insert embedded within the blanket layer (figure 2). Poole discloses the insert made from a polymer based blanket product which includes a polyester fiber mat (column 4, lines 63-65, column 5, lines 10-12). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to embed the fiber mat within the insulating material of Ragland motivated by the desire to provide better heat shield and sound damping effects (column 5, lines 5-20).

Poole does not specifically disclose the fiber mat insert spaced substantially equidistant from the first and second facing layers and having a thickness of about 2 to 2.5 mm. However, Poole discloses that to reduce the thickness of the insulator, increase its flexibility for ease of installation and lower the production cost, the insert is sized and positioned in the insulator at the

specific locations to allow the best thermal shielding of the heat source and/or to provide excellent sound damping from the sources of strong sounds. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to embed the fiber mat within the insulating material in a manner as set out in the claims motivated by the desire to allow the best thermal shielding of the heat source and/or to provide excellent sound damping from the sources of strong sounds. This is in line with *In re Aller*, 105 USPQ 233 which holds discovering the optimum or workable ranges involves only routine skill in the art.

Claims 2, 3, 5, 7, 10-12, 15-20, 33, 35, 39-42, 44, and 47-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poole et al (US 6,955,845) in view of Ragland et al (WO 90/14944).

Poole discloses an acoustical and thermal insulator comprising a blanket layer interposed between two facing layers and the porous insert embedded within the blanket layer (figure 2). The first and second facing layers can be made from metal foils (column 4, lines 15-20; and column 5, lines 45-47). The first facing layer has a thickness of 1 mil within the claimed range. Poole discloses the insert made from a polymer based blanket product which includes a polyester fiber mat (column 4, lines 63-65, column 5, lines 10-12). The insulator is mounted on a vehicle body panel (column 5, lines 40-45). The insulator is light weight, easily manipulated with bending or folding into a mounting position (column 6, lines 60-65). Poole does not specifically disclose the polymer based blanket layer being a foam layer. Ragland, however, teaches a heat shield laminate comprising a first metallic layer, a first insulating material, a second metallic layer and a second insulating material. The first and second insulating materials can be either a polyurethane foam or a non-woven layer (claims 19 and 20). The heat shield laminate is

mounted on the metal floor of the passenger compartment (page 7, lines 10-20), which reads on Appellants' automotive body panel. The laminate has surprisingly effective acoustical properties (page 8, lines 5-10). The insulation layer is a polyester non-woven batt (page 10, lines 25-28). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the foam layer of Ragland for the Poole polymer based blanket layer motivated by the desire to obtain the insulator with higher heat insulation, thereby providing excellent thermal protection in "spot" insulation applications (see Ragland, page 6, lines 5-15).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add an additional insulating layer to a metal foil layer opposite from the blanket layer motivated by the desire to obtain the insulator with higher heat insulation, thereby providing excellent thermal protection in "spot" insulation applications.

Poole does not specifically disclose the fiber mat insert spaced substantially equidistant from the first and second facing layers and having a thickness of about 2 to 2.5 mm. However, Poole discloses that to reduce the thickness of the insulator, increase its flexibility for ease of installation and lower the production cost, the insert is sized and positioned in the insulator at the specific locations to allow the best thermal shielding of the heat source and/or to provide excellent sound damping from the sources of strong sounds. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to embed the fiber mat within the insulating material in a manner as set out in the claims motivated by the desire to allow the best thermal shielding of the heat source and/or to provide excellent sound

damping from the sources of strong sounds. This is in line with *In re Aller*, 105 USPQ 233 which holds discovering the optimum or workable ranges involves only routine skill in the art.

Poole as modified by Ragland discloses the insulating layer having excellent vibration-damping and heat shielding effects. Therefore, it is the examiner's position that the foam layer would inherently have the heat shield and acoustic damping within the claimed ranges so as to effectively serve the same purposes.

Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poole et al (US 6,955,845) in view of Ragland et al (WO 90/14944) as applied to claim 47 above, and further in view of Hasegawa et al (US 4,923,904).

Neither Poole nor Ragland teaches or discloses the foam layer being made from an expandable foaming composition as recited in the claims. Hasegawa, however, discloses a polyurethane foam suitable as a heat insulating material, made from a composition similar to the composition as set forth in the claims. Hasegawa discloses the foam easily being cut to form a shape when used and fitted to a complex shape (column 3, lines 50-55). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the polyurethane foam as described in the Hasegawa invention because the foam layer has excellent foaming performance and can be produced from less expensive raw materials and fitted to a complex shape.

(10) Response to Argument

The examiner's comments regarding Appellants' issue I

Appellants contend that that Zwick does not teach the foam layer having deformation properties set forth in the claims. The examiner respectfully disagrees. The examiner directs

Appellants' attention to column 3, lines 48-50. The insulating assembly consists of *resilient* porous foams. The resilient insulating assembly acts like a spring between the car body part and the backing sheet (column 3, line 42-43). The spring action of the insulating assembly assists attachment of the heat shield (column 5, lines 45-50). The "resilient" and "spring action" taken individually or in combination would indicate that the foam layer is deformable to accommodate a particular shape and contour to which the heat shield is to be bent and to generally conform in use without substantially damaging the cellular structure of the foam as a result of such deformation. Appellants argue that nowhere does Zwick teach or suggest the foam having claimed thermal and acoustic insulation properties. That is inaccurate in view of the reference disclosure. Zwick discloses the resilient insulating layer having a superior vibration-damping and heat resistance effects (column 4, lines 20-25). Zwick does not specifically disclose that the foam being effective to withstand operative heat shield temperatures of at least 1000°F, and to dampen acoustic tonal frequency below 2000 Hz. However, Zwick discloses a heat shielding vehicle trim comprising a car body and a heat shield clamped to the car body. The insulating material is formed from a resilient porous foam, acting like a spring between the car body and the backing sheet. The foam materials of Zwick and the claimed invention are both deformable, having the superior vibration-damping and heat resistance characteristics and serve the same purposes as a heat shield for an automobile body panel. Therefore, it is the examiner's position that the foam layer of Zwick would inherently have the heat shield and acoustic damping within the claimed ranges so as to be an effective heat shield for the car body. Accordingly, the art rejections over Zwick are sustained.

The examiner's comments regarding Appellants' issue II

Appellants argue that Ragland does not teach or suggest a foam layer having deformability characteristics. The examiner respectfully disagrees. Ragland discloses the foam material including silicone foam which is known of a very deformable material (page 11, lines 20-22). Ragland further adds that the foam material has a desired *elasticity* (page 11, lines 25-27). Likewise, the foam material must be deformable so as to have the desired elasticity as disclosed by Ragland. Appellants contend that there is no teaching or suggestion that the foam of Ragland have the vibration damping and heat resistance set forth in the claim. That is not true. The foam material of the present invention and Ragland are deformable, having the vibration-damping and heat resistance characteristics, and serving the same purpose as a heat shield for an automobile body panel. The foam material is formed from a polyurethane foam. Therefore, it is the examiner's position that the foam layer of Ragland would inherently have the heat shield and acoustic damping within the claimed ranges so as to be an effective heat shield for the vehicle panel Accordingly, the art rejections are sustained.

The examiner's comments regarding Appellants' issue III

Appellants argue that since the foam material of Ragland does not have the same heat resistance, deformability, and vibration damping properties required by the claims. The combination of Poole and Ragland does not achieve the claimed invention. The examiner has provided a detailed analysis as to why Ragland teaches the foam material meeting all of three properties recited by the claims. The examiner incorporates those arguments by reference. Thus, the examiner respectfully submits that the combined teachings of Poole and Ragland do establish a *prima facie* case of obviousness.

Appellants further argue that one skilled in the art would not be motivated to substitute the foam layer of Ragland for the insert of Poole because to do so would make the other components forming the Poole insulator inoperative above 450°F. The statements lack logical foundation for the following reasons. Poole teaches that "an insert *must not* produce smoke when exposed to temperatures as high as 450 °F. Materials such as fiberglass and some higher temperature foams are ideal for such application." (column 5, lines 21-28). Likewise, it would be acceptable and even advantageous to replace the polymer based blanket layer with the foam of Ragland which can withstand operative heat shield temperature of at least 1000°F because the substitution provides additional thermal insulation to the insulator.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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